Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID	:	**CP-2017-11-22-04** **Date: 25-11-2017**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Agency	:	Sri.B.B Umesh, SMLP Asphalts, Bettahalasoor V & Post, Bangalore North.
Project Name	:	Providing pot hole filling in ward No.04.
Customer's Reference	:	BBMP/EE(YNK.D)/W.O/118/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-11-2017
Sample ID No	:	2017-11-22-04/01
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test	:	23-11-2017

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	65	60 to 70
2	Softening Point, °C	43.6	Min. 40°C
3	Ductility, cm	88	Min. 75cm
4	Flash point, °C	238	Min. 220°C
	Fire point, °C	255	

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID	:	**CP-RW-2017-11-20-02** **Date: 22-11-2017**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Project Name	:	Providing pot hole filling in ward No.04.
Agency	:	Sri.B.B Umesh, SMLP Asphalts, Bettahalasoor V & Post, Bangalore North.
Customer Reference	:	BBMP/EE(YNK.D)/W.O/118/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	20-11-2017
Sample ID No	:	2017-11-20-02/01
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	20-11-2017

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	308.1	308.4
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	75.8	75.4
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	231.9	232.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.4	0.5
5	Aggregate impact value	(B/A)*100	24.6	24.4
6	Aggregate impact value (Mean of two tests)	Pecentage	24.5	

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	CP-RW-2017-11-20-02 **Date: 22-11-2017**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Project Name	:	Providing pot hole filling in ward No.04.
Agency	:	Sri.B.B Umesh, SMLP Asphalts, Bettahalasoor V & Post, Bangalore North.
Customer Reference	:	BBMP/EE(YNK.D)/W.O/118/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	20-11-2017
Sample ID No	:	2017-11-20-02/01
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	20-11-2017

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	11.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	10.4%	
Combined Flakiness and Elongation Index for WMM	22.3%	

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

CIVIL Pro Sig Date BANGALORE

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

TEST RESULTS OF GRADATION FOR WMM

Lab ID	:	**CP-RW-2017-11-20-02** **Date: 22-11-2017**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Project Name	:	Providing pot hole filling in ward No.04.
Agency	:	Sri.B.B Umesh, SMLP Asphalts, Bettahalasoor V & Post, Bangalore North.
Customer Reference	:	BBMP/EE(YNK.D)/W.O/118/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	20-11-2017
Sample ID No	:	2017-11-20-02/01
Type of Mix	:	WMM (Wet Mix Macadam)
Date of test	:	20-11-2017
Oven Dry Weight	:	10000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	242	242	2.4	97.6	95-100
22.4	2155	2397	24.0	76.0	60-80
11.2	2059	4456	44.6	55.4	40-60
4.75	2384	6840	68.4	31.6	25-40
2.36	1044	7884	78.8	21.2	15-30
0.6	945	8829	88.3	11.7	8-22
0.075	750	9579	95.8	4.2	0-5

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Authorized Signatory
Quality Manager

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2017-11-27-07**	**Date: 29-11-2017**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub Division, BBMP, Bangalore.	
Address	:	Yelahanka Satellite town Sub Division, BBMP, Bangalore.	
Project Name	:	Providing pot hole filling in ward No.04.	
Agency	:	Sri.B.B Umesh, SMLP Asphalts, Bettahalasoor V & Post, Bangalore North.	
Customer Reference	:	BBMP/EE(YNK.D)/W.O/118/2016-17	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	27-11-2017	
Sample ID No	:	2017-11-27-07/01	
Type of Mix	:	BC-Plant (Bituminous Concrete)	
Date of test	:	27-11-2017	
Oven Dry Weight	:	5000 Grams	

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	92	92	1.8	98.2	90-100
9.5	629	721	14.4	85.6	70-88
4.75	752	1473	29.5	70.5	53-71
2.36	698	2171	43.4	56.6	42-58
1.18	715	2886	57.7	42.3	34-48
0.6	699	3585	71.7	28.3	26-38
0.3	498	4083	81.7	18.3	18-28
0.15	209	4292	85.8	14.2	12-20
0.075	318	4610	92.2	7.8	4-10
PAN	390	5000	100	0.0	0

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2017-11-27-07** **Date: 30-11-2017**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Project Name	:	Providing pot hole filling in ward No.04.
Agency	:	Sri.B.B Umesh, SMLP Asphalts, Bettahalasoor V & Post, Bangalore North.
Customer Reference	:	BBMP/EE(YNK.D)/W.O/118/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	27-11-2017
Sample ID No	:	2017-11-27-07/01
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	27-11-2017

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	10.9	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	12.5		
Strength	Aggregate Impact Value	23.5	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.61	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.19	Maximum 2%	IS:2386 Part III

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2017-11-27-07** **Date: 30-11-2017**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Project Name	:	Providing pot hole filling in ward No.04.
Agency	:	Sri.B.B Umesh, SMLP Asphalts, Bettahalasoor V & Post, Bangalore North.
Customer Reference	:	BBMP/EE(YNK.D)/W.O/118/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	27-11-2017
Sample ID No	:	2017-11-27-07/01
Type of Mix	:	BC(Bitumenous Concrete)
Date of test	:	27-11-2017

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.5	Minimum Retained Coating 95%
2	99.0	1.0		
3	98.5	1.5		

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2017-11-27-07** **Date: 30-11-2017**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub Division, BBMP, Bangalore.
Project Name	:	Providing pot hole filling in ward No.04.
Agency	:	Sri.B.B Umesh, SMLP Asphalts, Bettahalasoor V & Post, Bangalore North.
Customer Reference	:	BBMP/EE(YNK.D)/W.O/118/2016-17
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	27-11-2017
Sample ID No	:	2017-11-27-07/01
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	27-11-2017

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

SLNo	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	12.14	11.98	10KN(min)
2	Marshal flow at 60°C, mm	3.68	3.75	2-4
3	Percent air Voids	4.89	4.79	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.72	14.66	13-15
5	Percent Voids filled with Bitumen(VFB %)	72.97	72.86	65-75
6	Density, g/cc	2.26	2.27	–

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Authorized Signatory
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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com
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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2017-12-07-05 **Date: 09-12-2017**

Customer : Assistant Executive Engineer, Yelahanka Satellite town Sub Division, BBMP, Bangalore.

Address : Yelahanka Satellite town Sub Division, BBMP, Bangalore.

Project Name : Providing pot hole filling in ward No.04.

Agency : Sri.B.B Umesh, SMLP Asphalts, Bettahalasoor V & Post, Bangalore North.

Customer Reference : BBMP/EE(YNK.D)/W.O/118/2016-17

Source of Sample : Sample supplied by Agency

Date of Receipt : 07-12-2017

Sample ID No : 2017-12-07-05/01

Type of Mix : BC (Bituminous Concrete)

Date of test : 07-12-2017

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	501
2	Weight of the sample After extraction	B	468	466
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6.40	6.99
4	Average percentage	%	6.7	

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

Lab ID : CP-RW-2017-12-07-05

Sample ID : 2017-12-07-05/01

Date: 09-12-2017

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 468

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	25	25	5.3	94.7	90-100
9.5	72	97	20.7	79.3	70-88
4.75	89	186	39.7	60.3	53-71
2.36	79	265	56.6	43.4	42-58
1.18	38	303	64.7	35.3	34-48
0.6	18	321	68.6	31.4	26-38
0.3	26	347	74.1	25.9	18-28
0.15	32	379	81.0	19.0	12-20
0.075	52	431	92.1	7.9	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 466

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	28	28	6.0	94.0	90-100
9.5	75	103	22.1	77.9	70-88
4.75	91	194	41.6	58.4	53-71
2.36	72	266	57.1	42.9	42-58
1.18	39	305	65.5	34.5	34-48
0.6	22	327	70.2	29.8	26-38
0.3	29	356	76.4	23.6	18-28
0.15	35	391	83.9	16.1	12-20
0.075	51	442	94.8	5.2	4-10

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com